



Laramie Energy, LLC

Mesa County, CO

Bruton 19-06 Pad

Bruton 19-04E

Wellbore #1

Design: Wellbore #1

QES Survey Report

12 September, 2017





Survey Report



| | | | |
|------------------|---------------------|-------------------------------------|------------------------------|
| Company: | Laramie Energy, LLC | Local Co-ordinate Reference: | Well Bruton 19-04E |
| Project: | Mesa County, CO | TVD Reference: | well @ 7286.0usft (H&P #290) |
| Site: | Bruton 19-06 Pad | MD Reference: | well @ 7286.0usft (H&P #290) |
| Well: | Bruton 19-04E | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | EDM 5000.1 Single User Db |

| | | | |
|--------------------|---------------------------|----------------------|----------------|
| Project | Mesa County, CO | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Central Zone | | |

| Site | | Bruton 19-06 Pad | | | |
|-----------------------|----------|------------------|-------------------|-------------------|-------------|
| Site Position: | | Northing: | 1,528,940.55 usft | Latitude: | 39.262756 |
| From: | Lat/Long | Easting: | 2,344,737.10 usft | Longitude: | -107.814558 |
| Position Uncertainty: | 0.0 usft | Slot Radius: | 13-3/16 " | Grid Convergence: | -1.46 ° |

| Well | Bruton 19-04E | | | | | |
|----------------------|---------------|----------|---------------------|-------------------|---------------|--------------|
| Well Position | +N/-S | 0.0 usft | Northing: | 1,529,017.70 usft | Latitude: | 39.262958 |
| | +E/-W | 0.0 usft | Easting: | 2,344,602.08 usft | Longitude: | -107.815042 |
| Position Uncertainty | | 0.0 usft | Wellhead Elevation: | 0.0 usft | Ground Level: | 7,262.0 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #1 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2015 | 8/30/2017 | 9.57 | 65.42 | 51,393.54314964 |

| | | | | | |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|-----|
| Design | Wellbore #1 | | | | |
| Audit Notes: | | | | | |
| Version: | 1.0 | Phase: | ACTUAL | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) | |
| | 0.0 | 0.0 | 0.0 | 55.16 | |

| | | | | | |
|-----------------------|------------------|---------------------------|------------------|--------------------|--|
| Survey Program | Date | 9/12/2017 | | | |
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 204.0 | 8,410.0 | MWD Surveys (Wellbore #1) | MWD default | MWD - Standard | |

| | | | | | | | | | |
|---|------------------------|--------------------|------------------------------|---------------------|---------------------|--------------------------------|--------------------------------|-------------------------------|------------------------------|
| Survey | | | | | | | | | |
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| First MWD Survey @ 204.0' MD / TVD | | | | | | | | | |
| 204.0 | 4.10 | 68.30 | 203.8 | 2.7 | 6.8 | 7.1 | 2.01 | 2.01 | 0.00 |
| 295.0 | 6.20 | 59.90 | 294.5 | 6.4 | 14.1 | 15.2 | 2.45 | 2.31 | -9.23 |
| 386.0 | 9.40 | 61.20 | 384.6 | 12.4 | 24.8 | 27.5 | 3.52 | 3.52 | 1.43 |
| 476.0 | 13.30 | 57.60 | 472.8 | 21.5 | 40.0 | 45.1 | 4.40 | 4.33 | -4.00 |
| 567.0 | 16.10 | 57.30 | 560.8 | 33.9 | 59.5 | 68.2 | 3.08 | 3.08 | -0.33 |
| 657.0 | 16.90 | 59.40 | 647.1 | 47.3 | 81.2 | 93.7 | 1.11 | 0.89 | 2.33 |
| 749.0 | 17.90 | 54.70 | 734.9 | 62.3 | 104.3 | 121.2 | 1.87 | 1.09 | -5.11 |
| 839.0 | 20.30 | 50.30 | 820.0 | 80.3 | 127.6 | 150.6 | 3.11 | 2.67 | -4.89 |
| 930.0 | 23.30 | 52.90 | 904.5 | 101.2 | 154.1 | 184.3 | 3.46 | 3.30 | 2.86 |



Survey Report



| | | | |
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| Project: | Mesa County, CO | TVD Reference: | well @ 7286.0usft (H&P #290) |
| Site: | Bruton 19-06 Pad | MD Reference: | well @ 7286.0usft (H&P #290) |
| Well: | Bruton 19-04E | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | EDM 5000.1 Single User Db |

| Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 1,025.0 | 26.40 | 55.50 | 990.6 | 124.5 | 186.5 | 224.2 | 3.46 | 3.26 | 2.74 |
| 1,119.0 | 29.20 | 54.80 | 1,073.8 | 149.6 | 222.5 | 268.0 | 3.00 | 2.98 | -0.74 |
| 1,214.0 | 32.90 | 53.80 | 1,155.2 | 178.2 | 262.2 | 317.0 | 3.93 | 3.89 | -1.05 |
| 1,309.0 | 34.40 | 52.50 | 1,234.2 | 209.8 | 304.3 | 369.6 | 1.75 | 1.58 | -1.37 |
| 1,404.0 | 33.60 | 53.40 | 1,313.0 | 241.8 | 346.7 | 422.7 | 0.99 | -0.84 | 0.95 |
| 1,498.0 | 33.20 | 56.30 | 1,391.5 | 271.6 | 389.0 | 474.4 | 1.75 | -0.43 | 3.09 |
| 1,658.0 | 33.00 | 57.20 | 1,525.5 | 319.5 | 462.1 | 561.8 | 0.33 | -0.13 | 0.56 |
| 1,752.0 | 32.40 | 56.10 | 1,604.6 | 347.4 | 504.5 | 612.5 | 0.90 | -0.64 | -1.17 |
| 1,847.0 | 32.10 | 55.40 | 1,685.0 | 375.9 | 546.4 | 663.2 | 0.50 | -0.32 | -0.74 |
| 1,942.0 | 31.40 | 54.90 | 1,765.8 | 404.5 | 587.4 | 713.2 | 0.79 | -0.74 | -0.53 |
| 2,036.0 | 30.40 | 57.10 | 1,846.4 | 431.5 | 627.5 | 761.5 | 1.60 | -1.06 | 2.34 |
| 2,131.0 | 31.20 | 58.00 | 1,928.0 | 457.6 | 668.5 | 810.1 | 0.97 | 0.84 | 0.95 |
| 2,225.0 | 30.00 | 57.60 | 2,008.9 | 483.1 | 709.0 | 857.9 | 1.29 | -1.28 | -0.43 |
| 2,320.0 | 31.60 | 58.40 | 2,090.5 | 508.8 | 750.2 | 906.5 | 1.74 | 1.68 | 0.84 |
| 2,414.0 | 31.70 | 60.00 | 2,170.5 | 534.1 | 792.6 | 955.7 | 0.90 | 0.11 | 1.70 |
| 2,509.0 | 33.20 | 58.70 | 2,250.7 | 560.1 | 836.5 | 1,006.5 | 1.74 | 1.58 | -1.37 |
| 2,604.0 | 32.20 | 57.40 | 2,330.6 | 587.2 | 880.0 | 1,057.7 | 1.29 | -1.05 | -1.37 |
| 2,698.0 | 30.40 | 58.10 | 2,411.0 | 613.3 | 921.3 | 1,106.5 | 1.95 | -1.91 | 0.74 |
| 2,793.0 | 31.10 | 55.70 | 2,492.6 | 639.8 | 962.0 | 1,155.1 | 1.49 | 0.74 | -2.53 |
| 2,888.0 | 31.40 | 53.40 | 2,573.8 | 668.4 | 1,002.1 | 1,204.3 | 1.29 | 0.32 | -2.42 |
| 2,982.0 | 32.50 | 53.40 | 2,653.6 | 698.1 | 1,042.0 | 1,254.1 | 1.17 | 1.17 | 0.00 |
| 3,077.0 | 33.80 | 53.70 | 2,733.1 | 728.9 | 1,083.8 | 1,306.0 | 1.38 | 1.37 | 0.32 |
| 3,171.0 | 32.70 | 52.80 | 2,811.7 | 759.8 | 1,125.1 | 1,357.5 | 1.28 | -1.17 | -0.96 |
| 3,266.0 | 33.60 | 54.70 | 2,891.3 | 790.5 | 1,167.0 | 1,409.4 | 1.45 | 0.95 | 2.00 |
| 3,360.0 | 32.60 | 55.50 | 2,970.0 | 819.8 | 1,209.1 | 1,460.8 | 1.16 | -1.06 | 0.85 |
| 3,455.0 | 31.10 | 55.20 | 3,050.7 | 848.3 | 1,250.4 | 1,510.9 | 1.59 | -1.58 | -0.32 |
| 3,549.0 | 34.20 | 54.40 | 3,129.9 | 877.6 | 1,291.8 | 1,561.6 | 3.33 | 3.30 | -0.85 |
| 3,644.0 | 33.80 | 53.50 | 3,208.6 | 908.8 | 1,334.7 | 1,614.7 | 0.68 | -0.42 | -0.95 |
| 3,738.0 | 32.80 | 52.80 | 3,287.2 | 939.8 | 1,376.0 | 1,666.3 | 1.14 | -1.06 | -0.74 |
| 3,833.0 | 33.60 | 56.20 | 3,366.7 | 970.0 | 1,418.4 | 1,718.3 | 2.13 | 0.84 | 3.58 |
| 3,928.0 | 32.60 | 56.60 | 3,446.3 | 998.7 | 1,461.6 | 1,770.1 | 1.08 | -1.05 | 0.42 |
| 4,023.0 | 30.90 | 56.70 | 3,527.0 | 1,026.2 | 1,503.4 | 1,820.1 | 1.79 | -1.79 | 0.11 |
| 4,117.0 | 29.80 | 57.30 | 3,608.2 | 1,052.0 | 1,543.2 | 1,867.6 | 1.21 | -1.17 | 0.64 |
| 4,212.0 | 30.20 | 56.30 | 3,690.4 | 1,078.0 | 1,582.9 | 1,915.1 | 0.67 | 0.42 | -1.05 |
| 4,307.0 | 31.30 | 57.60 | 3,772.1 | 1,104.5 | 1,623.6 | 1,963.6 | 1.35 | 1.16 | 1.37 |
| 4,401.0 | 30.10 | 57.10 | 3,852.9 | 1,130.4 | 1,664.0 | 2,011.6 | 1.31 | -1.28 | -0.53 |
| 4,496.0 | 31.50 | 58.60 | 3,934.5 | 1,156.3 | 1,705.2 | 2,060.1 | 1.68 | 1.47 | 1.58 |
| 4,590.0 | 33.70 | 58.30 | 4,013.7 | 1,182.8 | 1,748.4 | 2,110.7 | 2.35 | 2.34 | -0.32 |
| 4,684.0 | 32.30 | 59.20 | 4,092.5 | 1,209.4 | 1,792.2 | 2,161.8 | 1.58 | -1.49 | 0.96 |
| 4,779.0 | 32.30 | 56.00 | 4,172.8 | 1,236.5 | 1,835.0 | 2,212.5 | 1.80 | 0.00 | -3.37 |
| 4,874.0 | 30.90 | 56.50 | 4,253.7 | 1,264.2 | 1,876.4 | 2,262.3 | 1.50 | -1.47 | 0.53 |
| 4,968.0 | 32.00 | 56.90 | 4,333.9 | 1,291.1 | 1,917.4 | 2,311.3 | 1.19 | 1.17 | 0.43 |
| 5,063.0 | 30.50 | 56.20 | 4,415.1 | 1,318.3 | 1,958.5 | 2,360.6 | 1.62 | -1.58 | -0.74 |



Survey Report



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| Survey | | | | | | | | | | |
|---|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | |
| 5,157.0 | 30.80 | 57.90 | 4,496.0 | 1,344.3 | 1,998.7 | 2,408.5 | 0.98 | 0.32 | 1.81 | |
| 5,252.0 | 29.80 | 57.50 | 4,578.0 | 1,370.0 | 2,039.2 | 2,456.3 | 1.07 | -1.05 | -0.42 | |
| 5,347.0 | 28.40 | 56.00 | 4,661.0 | 1,395.3 | 2,077.9 | 2,502.5 | 1.66 | -1.47 | -1.58 | |
| 5,441.0 | 26.50 | 55.90 | 4,744.4 | 1,419.5 | 2,113.8 | 2,545.8 | 2.02 | -2.02 | -0.11 | |
| 5,536.0 | 25.40 | 55.40 | 4,829.9 | 1,443.0 | 2,148.1 | 2,587.4 | 1.18 | -1.16 | -0.53 | |
| 5,630.0 | 23.30 | 53.80 | 4,915.5 | 1,465.4 | 2,179.7 | 2,626.2 | 2.34 | -2.23 | -1.70 | |
| 5,725.0 | 20.70 | 53.30 | 5,003.6 | 1,486.6 | 2,208.3 | 2,661.7 | 2.74 | -2.74 | -0.53 | |
| 5,820.0 | 17.90 | 56.70 | 5,093.2 | 1,504.6 | 2,234.0 | 2,693.1 | 3.17 | -2.95 | 3.58 | |
| 5,914.0 | 14.60 | 54.80 | 5,183.5 | 1,519.4 | 2,255.7 | 2,719.4 | 3.56 | -3.51 | -2.02 | |
| 6,009.0 | 11.60 | 50.10 | 5,276.0 | 1,532.4 | 2,272.9 | 2,740.9 | 3.35 | -3.16 | -4.95 | |
| 6,103.0 | 9.40 | 50.60 | 5,368.4 | 1,543.3 | 2,286.0 | 2,758.0 | 2.34 | -2.34 | 0.53 | |
| 6,198.0 | 8.20 | 52.70 | 5,462.3 | 1,552.4 | 2,297.4 | 2,772.5 | 1.31 | -1.26 | 2.21 | |
| 6,292.0 | 4.70 | 48.80 | 5,555.7 | 1,559.0 | 2,305.7 | 2,783.0 | 3.75 | -3.72 | -4.15 | |
| 6,387.0 | 3.90 | 49.00 | 5,650.4 | 1,563.7 | 2,311.0 | 2,790.1 | 0.84 | -0.84 | 0.21 | |
| 6,481.0 | 2.90 | 48.30 | 5,744.2 | 1,567.3 | 2,315.2 | 2,795.6 | 1.06 | -1.06 | -0.74 | |
| 6,576.0 | 3.80 | 46.70 | 5,839.1 | 1,571.1 | 2,319.3 | 2,801.1 | 0.95 | 0.95 | -1.68 | |
| 6,670.0 | 3.00 | 45.60 | 5,932.9 | 1,574.9 | 2,323.3 | 2,806.6 | 0.85 | -0.85 | -1.17 | |
| 6,765.0 | 3.80 | 47.90 | 6,027.7 | 1,578.8 | 2,327.4 | 2,812.2 | 0.85 | 0.84 | 2.42 | |
| 6,860.0 | 2.80 | 53.10 | 6,122.6 | 1,582.3 | 2,331.6 | 2,817.6 | 1.10 | -1.05 | 5.47 | |
| 6,954.0 | 2.50 | 54.00 | 6,216.5 | 1,584.9 | 2,335.1 | 2,822.0 | 0.32 | -0.32 | 0.96 | |
| 7,049.0 | 1.90 | 62.40 | 6,311.4 | 1,586.8 | 2,338.2 | 2,825.6 | 0.72 | -0.63 | 8.84 | |
| 7,144.0 | 1.30 | 58.50 | 6,406.4 | 1,588.1 | 2,340.5 | 2,828.3 | 0.64 | -0.63 | -4.11 | |
| 7,238.0 | 0.70 | 70.80 | 6,500.4 | 1,588.9 | 2,342.0 | 2,829.9 | 0.67 | -0.64 | 13.09 | |
| 7,333.0 | 0.60 | 125.50 | 6,595.4 | 1,588.8 | 2,342.9 | 2,830.6 | 0.64 | -0.11 | 57.58 | |
| 7,427.0 | 0.80 | 132.30 | 6,689.4 | 1,588.0 | 2,343.8 | 2,830.9 | 0.23 | 0.21 | 7.23 | |
| 7,522.0 | 0.80 | 140.80 | 6,784.3 | 1,587.1 | 2,344.7 | 2,831.1 | 0.12 | 0.00 | 8.95 | |
| 7,616.0 | 0.60 | 117.90 | 6,878.3 | 1,586.3 | 2,345.6 | 2,831.4 | 0.36 | -0.21 | -24.36 | |
| 7,711.0 | 0.50 | 76.80 | 6,973.3 | 1,586.2 | 2,346.4 | 2,832.0 | 0.42 | -0.11 | -43.26 | |
| 7,806.0 | 0.20 | 194.90 | 7,068.3 | 1,586.1 | 2,346.8 | 2,832.3 | 0.65 | -0.32 | 124.32 | |
| 7,900.0 | 0.50 | 288.60 | 7,162.3 | 1,586.1 | 2,346.3 | 2,831.9 | 0.59 | 0.32 | 99.68 | |
| 7,995.0 | 0.20 | 324.20 | 7,257.3 | 1,586.4 | 2,345.8 | 2,831.6 | 0.38 | -0.32 | 37.47 | |
| 8,089.0 | 0.80 | 267.50 | 7,351.3 | 1,586.5 | 2,345.1 | 2,831.1 | 0.76 | 0.64 | -60.32 | |
| 8,184.0 | 1.30 | 253.80 | 7,446.3 | 1,586.2 | 2,343.4 | 2,829.5 | 0.59 | 0.53 | -14.42 | |
| 8,279.0 | 1.40 | 252.70 | 7,541.3 | 1,585.5 | 2,341.3 | 2,827.4 | 0.11 | 0.11 | -1.16 | |
| 8,344.0 | 0.80 | 190.30 | 7,606.3 | 1,584.8 | 2,340.4 | 2,826.3 | 1.92 | -0.92 | -96.00 | |
| Projection to TD @ 8410.0' MD / 7672.3' TVD | | | | | | | | | | |
| 8,410.0 | 0.80 | 190.30 | 7,672.3 | 1,583.9 | 2,340.3 | 2,825.6 | 0.00 | 0.00 | 0.00 | |



Survey Report



| | | | |
|------------------|---------------------|-------------------------------------|------------------------------|
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| Site: | Bruton 19-06 Pad | MD Reference: | well @ 7286.0usft (H&P #290) |
| Well: | Bruton 19-04E | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | EDM 5000.1 Single User Db |

Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
|-----------------------------|-----------------------------|-------------------|-----------------|---|
| | | +N/-S (usft) | +E/-W (usft) | |
| 204.0 | 203.8 | 2.7 | 6.8 | First MWD Survey @ 204.0' MD / TVD |
| 8,410.0 | 7,672.3 | 1,583.9 | 2,340.3 | Projection to TD @ 8410.0' MD / 7672.3' TVD |